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THE DISTRIBUTION OF MONEY.

THE essential law governing the distribution of money between individuals and communities is the law of marginal utility. This law, as worked out by the Austrian school of economists, is simply the statement in scientific form of the rule that every man will select possible objects of acquirement in the exact order in which he regards them as most necessary for his use. A mariner about to desert a sinking ship would consider a boat or raft of the highest utility, because it would stand between him and death. He would next choose from the equipment of the vessel, if he had the opportunity, the most nutritious articles of food, and his later choice would turn to clothing, tools for construction and agriculture, or weapons for defense, according to the nature of the country upon which he expected to be cast and the varying degrees of usefulness to him of the objects open to his selection. For the natural man food is among the first objects of utility; shelter perhaps comes second; and clothing next. Substantially the same order of selection prevails in communities far advanced in civilization and with their individual members. The laboring man who receives five dollars a week has up to that value the entire world of commodities which are offered for sale in accessible markets among which to choose his objects of expenditure. He might devote the entire sum to wines or diamonds. He is driven, however, by the natural law of marginal utility to employ his slender resources in buying the articles which he thinks necessary to sustain life. A loaf of bread each day becomes to him of the very highest marginal utility, because that or its equivalent in nourishing qualities is absolutely necessary to his existence. It is only the first loaf of bread each day, however, which has this high utility. Ten loaves become less valuable in proportion as they become less necessary to life and comfort. When a sufficient supply of bread, therefore, has been purchased, the marginal utility of the

next most useful article becomes greater than the surplus loaves of bread, and the surplus of earnings above the amount required for the bread is applied to the next article. Thus, by a graduated scale, determined in every case according to the estimate of utility of the article, the purchases from income are extended over an enlarged series of articles, according as a sufficient supply of those most essential has already been obtained.

This law of marginal utility governs the investment of capital and the movements of money. It is the controlling law which gives transferability to capital and draws it inevitably in the directions which promise the greatest returns. As the community will pay the highest prices for those articles upon which it places the highest estimation under the law of marginal utility, it follows that capital will earn the highest returns in producing these articles. The distribution of capital between communities and between industries will be determined in the long run by the utility of its employment to the owners of capital, and this will depend upon its degree of utility to the community. This utility will be indicated by the rate of interest. Capital will, therefore, be diverted as rapidly as friction can be overcome from employments which are less advantageous to the community (according to the current estimates of utilities) to those which are more advantageous.

Capital will have a higher utility in a new community, whose equipment of producing plant and means of transportation is incomplete, than in one where this equipment is already well advanced. A reason for this is found in the fact that the supply of capital has become comparatively large in the older community in proportion to the demand for it, and it is the marginal price of the excess which determines the rate for all. There will be no such excess in the less advanced community, and the rate will be determined by the offer which the users of capital are willing to make for the insufficient supply in the market. Thus the permanent rate of interest will be governed by the supply of loanable capital. A small supply will be employed in the most essential works and will yield the highest

marginal utility. When a community has been provided with these, the excess of loanable capital will be employed upon less necessary objects and will yield less utility to the community.¹ When the supply becomes very large, the positions of the borrower and lender are in some sense reversed, and the lender will make almost any concession in order to obtain some return from his saved capital. How these contentions between the borrower and the lender are reduced to a nicety upon a uniform and graduated scale by the operations of the stock market has been set forth elsewhere.²

The distribution of money is governed, like that of other forms of capital, by the law of marginal utility. A community which has much capital is able to invest a considerable portion in the tools of exchange; a community without saved capital, beyond the amount necessary to maintain current production, is able to invest but little in the tools of exchange. This is the scientific explanation of the state of the currency in nearly every country. A community which began without saved capital and was able to produce only enough goods each year to supply its pressing needs for food and clothing could not afford to set aside anything as a medium of exchange. Exchanges would have to be conducted entirely by barter, by the system of book credits, or by some other simple records. A unit of value might be conceivable in such a community, but all exchanges would resolve themselves into a system of barter, more or less refined. When such a community saved sufficient capital to set aside a small portion for investment in the medium of exchange, it would be able to employ a limited, but perhaps insufficient, amount of the precious metals. The law of marginal utility in such a case would lead to the employment of the cheaper rather

¹ "In a developing society, a colony, or a new country, when everything has yet to be created, capital, independently of demand and supply, is infinitely more productive than in an old society, where the larger part of the works of the highest degree of usefulness has already been provided."—LEROY-BEAULIEU, *De la répartition des richesses*, p. 242.

² *Vide* "Securities as a Means of Payment."—*Annals of the American Academy* (September 1899), xiv. p. 186.

than the dearer metal. The cheaper metal, as silver, would serve the purposes of such a community better than the dearer metal, as gold, not only because of the greater ease of obtaining it for goods and retaining it in circulation, but because its greater bulk and comparative divisibility would adapt it better to small transactions. Only as surplus capital became adequate for the investment in the tools of exchange of all that public convenience required would a stable and sufficient gold currency be created and retained.

In this law is found the key to many puzzling phenomena in monetary history. The advocates of an inferior or depreciated currency have often relied upon arguments lacking in straightforwardness, because they have not cared to make the confession that their community was too poor to set aside large capital for investment in the medium of exchange, or they have not clearly grasped the law governing the facts. Even where the effort has been made in such communities to create and maintain a currency of high cost—that is, requiring a large investment of real capital—the law of marginal utility has often made the experiment a failure. The people have instinctively sorted out from the variety of articles offered for their use, those having the highest marginal utility.¹ It is quite obvious that food, clothing, and other necessities in a simple community would outrank the use of gold and silver in the order of human wants. The process of selection becomes more complicated as communities advance in civilization and in the accumulation of capital, but by degrees the natural law of selection of the commodity having the highest marginal utility keeps that commodity

¹ Professor Lexis declared that the weaker states, in an economic sense, “especially those deeply in debt, will have to decide to forego the gold standard. They will, perhaps, make a few more attempts to establish a gold standard, and as a rule they will actually obtain the gold required to make a beginning, but they will not be able to keep it in free commerce.”—*Report of the Berlin Silver Commission*, in *Senate Misc. Document 274*, LIII. Congress, second session, i. p. 134. This was written in 1894, before the great increase of gold production, which has made it easier for weaker countries to obtain gold, but makes a correct statement of the principle involved.

at home, and sends abroad in exchange the commodity having a less degree of marginal utility.¹

One of the reasons why money tends towards the commercial centers at the expense of the agricultural sections, when the supply in a country is not sufficient for all sections, is its greater usefulness at such centers. Even if there was no difference in the capital available in each case for investment in a metallic currency, a greater service would be rendered by a given volume of money per capita in the cities than in the agricultural districts. The business of the cities is essentially the exchange of commodities, while that of the agricultural sections is the production of them. While production involves more or less of exchange, the ratio of exchanges to the population is smaller. This not only makes a large volume of money less essential to the producing sections, but makes the active work imposed upon a given piece of money much smaller. This is inevitably the case from the more scattered character of the population in the country districts, as well as from the smaller ratio of the occasions for making exchanges than in a population where exchange by trading is the chief business of a large part of the community.

If the cost of the use of money could be divided among the population by the service which it rendered during a given period, it would be found that a single piece performed many times the service in exchanges in the cities which it performed in the producing districts. If, for illustration, the convenience of employing money to make exchanges was worth one tenth of 1 per cent. for each exchange, it might be found that a given piece of money would perform five exchanges in a day in a trading center, making the cost per day for employing the money in each transaction only one fifth of the total cost of its

¹ "The demand of one class of the population for cotton to spin, and the demand of others for wheat or for beef, are not and cannot be subordinated to the desire which any set of men or of institutions may feel to see gold flow in. On the contrary, the requirements for consumption, determined by the occupations and relations of a great people, are fundamental conditions, to which financial interests and policies, under whatever name, must of necessity conform their action."—DUNBAR, *Quarterly Journal of Economics* (April 1899), xiii. p. 327.

use. In the producing sections, on the other hand, only one exchange a day might be performed, imposing the whole cost of the use of the money upon the individual who employed it for this exchange. Thus the marginal cost of the use of money is much greater in proportion to the transactions performed in the agricultural or producing districts than in the trading centers. This difference in cost, although difficult to trace in detail, would probably be felt in slight differences in prices of commodities, discount rates, and banking commissions, which would lead the country districts to employ the minimum of actual money which could be employed, or even less than what might be profitably employed.¹ The man who employed money in the trading center, whether by direct borrowing from banks, or by granting trade discounts for cash, would obtain the use of such an amount of money as convenience required at a small fraction of what its cost would be in the producing districts, and would therefore employ it more freely.

This conflict between the demand for money as a necessary implement of trade and the demand for other things explains the absorption of the large production of gold during the last few years in countries which formerly lacked a sufficient gold currency. Incidentally, also, it shows what powerful laws of distribution come in conflict with the direct operation of the quantitative theory of money. The gold money of the world increased from \$1,209,800,000 in 1873 to \$4,614,600,000 on January 1, 1899. If the new gold had simply found its way into the countries already employing a gold currency, and into those parts of such countries where gold was already most plentiful—simply placing three additional ounces of gold beside every ounce already in use—the effect would undoubtedly have

¹ An inquiry made in 1881 showed that the proportion of coin paid into certain banks of the Metropolitan District of Manchester was 25.21 per cent. of the total payments, while in certain towns reporting it was 17.31 per cent., and in sixty-one agricultural places only 10.68 per cent. The proportion of coin used in the Manchester suburbs, where there was a large demand for wage payments, was 34.9 per cent.—G. H. POWNALL, *Journal of the Institute of Bankers* (December 1881), ii. p. 636.

been seriously felt upon prices and upon national stocks of the metal. The new money, however, was far from being distributed in equal parts among the countries already equipped with a gold currency, or in those parts of such countries which were best equipped. These countries materially increased their holdings of gold, but a large part of the new supply sought new outlets, where a gold currency had not before been used. The following table shows the remarkable increase in gold equipment in several leading countries, and indicates also the appearance among the gold standard countries of nations which possessed little gold currency down to a recent date :

STOCK OF GOLD MONEY IN LEADING COUNTRIES.¹

Country	Stock in 1873	Stock January 1, 1899
United States - - - - -	\$135,000,000	\$945,800,000
Great Britain - - - - -	160,000,000	462,300,000
France - - - - -	450,000,000	810,600,000
Germany - - - - -	160,200,000	672,800,000
Belgium - - - - -	25,000,000	30,000,000
Austria-Hungary - - - - -	35,000,000	221,400,000
Netherlands - - - - -	12,000,000	30,200,000
Russia - - - - -	149,100,000	740,400,000
Australasia - - - - -	50,000,000	132,100,000

The reason why so much of the new gold went to countries formerly without a gold currency is found largely in its relatively small utility in the countries already equipped with such a currency. There is little doubt that these richer countries would have been able to retain the new gold if they had preferred it to other forms of capital, but they did not need it. Austria-Hungary, Russia, Japan, and several South American countries which needed it more, adopted the gold standard and took the proper measures by the issue of loans to obtain the gold without foregoing other necessary purchases abroad.² The first movement

¹ These figures are taken from the annual report of the Director of the Mint of the United States for the fiscal year 1899, pp. 40-43. The amounts are necessarily estimated to a considerable extent, but are based upon frequent and repeated inquiries and study from the best available data.

² Japan derived her surplus gold, without impairing her productive resources, from the indemnity of 200,000,000 taels (\$100,000,000) levied upon China by the treaty of

of the new gold from the Transvaal was towards the reserves of the Bank of England, which increased from £32,547,000 at the close of 1894 to £44,960,056 on January 1, 1896. But the sale on the London market of the national and industrial securities of the poorer countries, with the subtle operation of prices and discount rates, soon transferred the new gold to the countries where it had a higher marginal utility than in Great Britain, because the latter country was already well equipped with the yellow metal.

The experience of the civilized world on this occasion was similar to previous experiences when large discoveries of the precious metals were made, and demonstrated that new supplies of the metals or new issues of bank notes naturally find their way into the communities which have carried on business mainly by barter, and where an increased amount of metallic or representative money adds materially to the convenience of transactions.¹ A demand for additional supplies of money was found even in France after the Californian gold discoveries, when the new gold worked its way into the rural districts and supplied a medium of exchange where it had before been lacking. The same was true in many of the states of Germany and in the United States. These countries have gained materially by the opportunity of obtaining an adequate supply of the medium of exchange, but these supplies have not increased prices in the proportion which they bore to the pre-existing stocks of the precious metals. In France they caused some increase of prices in the rural districts by means of the increased activity which was given to trade, but not in proportion to the increase in the Shimonoseki. The manner in which £30,476,642 in English gold was transferred to Japan is fully set forth in the *Report on the Adoption of the Gold Standard in Japan*, by Count Matsukata, pp. 223-225. The process was somewhat similar to that by which Germany was enabled to draw gold from leading money markets, without sacrifice of her own capital, from the proceeds of the war indemnity levied upon France in 1871.

¹ "How many new markets," exclaims M. Cauwès, "have been opened to money since the sixteenth century! Eastern Europe was still half barbarous and America had just been born to civilization. There has been a sort of race between the accumulation of money by exploitation of the mines and the development of the commerce of the world."—*Cours d'Économie Politique*, ii. 159.

supply of the metals, which in some communities was many hundred per cent. How useful in meeting the needs of growing trade were these unexpected supplies of gold in France is thus set forth by M. Horn:¹

Twenty-five or thirty years ago three quarters perhaps of the rural population of France still lived almost exclusively under the régime of barter. . . . At most the small cultivator sold from time to time a few hectoliters of grain or some head of cattle, a few fowls and vegetables, to pay the farm rent, pay taxes and make some absolutely necessary purchases of furniture, clothes, tools and implements. Such a condition of things assuredly required but a small employment of the instruments of exchange and circulation. All this is changed today for two quarters at least of the three of which I spoke. Railways in a special degree, the development of education in general and of economic education in particular, the greater abundance of precious metals, the propagation of bank notes, have brought the country districts to the centers of population, the most isolated and backward into the general movement of affairs. The régime of exchange extends its domain before our eyes. Purchases and sales are multiplied in the villages and are introducing themselves into the hamlets. In those *arrondissements* and cantons where formerly the bill was a myth and the gold louis a phenomenon, hundreds of thousands of francs and even millions in specie and in bills are now in continuous rotation, promoting a movement of transactions which grow in intensity and extent day by day.

An important means of supplying a poor country with a sound and sufficient supply of money is afforded by the resources of modern finance. It is possible for the country having need for money, but having only a small fund of capital for investment, to obtain it by borrowing. This is rendered easy by the modern system of transferable securities. The sale of such securities to the capitalists of lending countries having a surplus fund of loanable capital has the practical effect of giving to the borrowing country a great quantity of the implements of production and exchange, finished machinery, railway equipment, the raw materials of manufacture, and even luxuries—without compelling immediate payment. Early payment may be made to the dealers in these articles in the lending country, but is made substantially from the funds contributed by the lenders in that country when they purchase industrial, mining, railway, and

¹ *La liberté des banques*, p. 263.

government securities issued in the borrowing country. The financiers of the latter country, in paying for these means of development by the delivery of pieces of paper in the form of negotiable securities, increase the capital available at home, without sending out anything of direct value in payment. Gold may be obtained in this manner as well as other commodities. The power to acquire gold, moreover, is increased by the supply of capital which has been entrusted to the borrowing country. The metal is perhaps more liable to flit across national boundaries or across the ocean than other articles, but a well-organized credit system and business customs and laws which protect the sanctity of contracts make it far from impossible to retain a gold currency in the face of comparative poverty of native resources.

One of the best illustrations of the maintenance of a gold currency by borrowing is that of the Russian Empire. Russia struggled for more than one hundred years, from 1768 to 1895, with irredeemable paper currency, constantly fluctuating in value. Attempts were made on four different occasions—in 1817, 1839, 1860 and 1881—to retire the paper and return to a specie basis. All these attempts failed for various reasons until 1895, when the government was enabled to accumulate a gold reserve of nearly 500 million dollars, including foreign credits. A series of well-considered measures for the acceptance of special gold deposits at the Imperial Bank, the issue of gold certificates, and finally the free payment of gold for public obligations at a fixed rate of exchange with the paper currency, put Russia finally and securely upon the gold standard. The outstanding paper currency, which stood at 986.6 million rubles (510 million dollars) on October 1, 1897, when the gold circulation was only 107 million rubles, fell to 555 million rubles on October 1, 1899, while gold was in circulation to the amount of 662.3 million rubles. Even with this large circulation of gold, the reserve of the Imperial Bank retained 856 million rubles (445 million dollars) in gold, exceeding by more than 300 million rubles the amount of bank notes remaining in circulation.

The capital which enabled the Russian government to accomplish such important results within so short a space of time was

obtained by the issue upon the Paris and Berlin markets of Russian national securities, which was supplemented as soon as the gold standard was fairly established by large issues and sales of the securities of Russian mining and industrial companies. The public debt was increased from 11,619,434,008 francs on January 1, 1887, to 16,567,830,000 francs (\$3,150,000,000) on January 1, 1900, but without any material increase in interest charges, because of the heightened credit derived from the maintenance of the gold standard.¹ This large fund of foreign capital was brought into Russia without direct compensation in the export of Russian products, and contributed to the remarkable industrial development of the country in recent years. It is obvious that the policy of prompt fulfillment of obligations and the adoption of a fixed monetary standard produced results far superior to any which were realized during the many years when the government sought the elusive profit derived from forced issues of irredeemable paper.

The experience of Russia demonstrates that it is far better economy for a poor country to maintain its credit unimpaired, and thereby to attract the aid of foreign capital for developing its resources, than to rely upon the questionable expedients of an unsound financial policy. An equipment of the medium of exchange based upon the standard of other civilized nations may thus be obtained without crippling the native resources of the country which are necessary for production. The organization of credit should permit the greatest possible economy in the use of the precious metals up to the point where the maintenance of a metallic currency and of confidence in its soundness are unimpaired, but economy becomes short-sighted and harmful to the producing efficiency of the country when it goes beyond this point. A country relying largely for its development upon borrowed capital runs grave risk of the withdrawal of such capital if its good faith is called in question, as was the case with the United States after the passage of the silver law of 1890. The panic of 1893 was largely due to the withdrawal of foreign

¹*Fonds d'état russes et autres valeurs mobilières créées en Russie*, pp. 39, 64.

capital after the Baring crisis at London in 1890. This withdrawal was caused partly by the need for money in London, but largely also by the fear of foreign investors that the United States were slipping, consciously or otherwise, from the gold onto the silver standard.¹

It does not follow from the high cost of a gold currency, and the greater relative ability of a rich country to retain it, that such a country should employ an excessive volume of metallic currency, or should not avail itself of every reasonable economy in its use. The question of the relative efficiency and utility of the instruments employed comes into play in the wealthy community, as well as in the poor. If book accounts and methods of credit will permit the carrying on of exchanges in as perfect a manner as the employment of the precious metals, then the highest economy, even in a wealthy community, will justify their employment. The necessity of reducing competition with other producing countries to the closest limits, under the law of marginal utility, may suggest the investment of capital in other parts of the machinery of production rather than the tools of exchange. Under such conditions the true marginal utility of the precious metals will be found at the point where the amount employed is sufficient, with instruments of credit, to carry on business with the greatest ease, ensure confidence in the monetary system, and maintain a sufficient reserve of the precious metals to prevent specie suspension in periods of depression or emergency. The same rules should govern a poor community when it acquires sufficient saved capital to permit any investment in metallic money. Such capital should be so discreetly invested that the metallic money obtained should perform the highest degree of service and form the basis of the largest volume of credit operations compatible with safety. The mechanism of credit should be devised with as much ingenuity as possible to economize the use of the precious metals without exposing the credit structure to undue risks.

The natural result of the rule laid down for the distribution

¹*Vide A History of Modern Banks of Issue*, by the present writer, p. 524.

of money would seem to be that rich countries would have more money than poor countries, both because they have surplus capital for investment in the medium of exchange and because money performs in such communities a more valuable and frequent service. The law of marginal utility would teach that the distribution of money should be in the ratio of the need for it in a given community in comparison with the need for other things. But there is another element of the highest importance which enters into the problem. This is the use of instruments of credit. The differences in the organization of credit, in the willingness to use substitutes for money, and in commercial customs afford the explanation of the wide differences in the amount of money per capita in different countries, and especially in the amount of coin. The following table shows the population, with the stock of gold, silver, and net paper money (including bank notes) in circulation in the leading countries of the world, with the circulation per capita in each.¹

MONEY SUPPLY OF PRINCIPAL COUNTRIES.

(In thousands of dollars.)

Country	Population	Gold	Silver	Uncovered paper	Total per capita
United States - -	75,300,000	\$945,800	\$639,000	\$ 329,700	\$25.42
United Kingdom - -	40,200,000	462,300	111,900	111,600	17.05
France - - -	38,500,000	810,600	420,100	161,100	36.15
Germany - - -	52,300,000	672,800	208,200	156,700	19.84
Belgium - - -	6,600,000	30,000	45,000	82,500	23.86
Italy - - -	31,700,000	98,000	43,900	174,900	9.99
Switzerland - - -	3,100,000	24,000	10,700	17,400	16.80
Spain - - -	18,300,000	53,400	7,800	187,500	15.22
Portugal - - -	5,100,000	5,200	9,600	75,200	17.64
Austria-Hungary - -	45,900,000	221,400	147,300	103,000	10.27
Netherlands - - -	5,000,000	30,200	56,400	47,200	26.76
Russia - - -	130,000,000	740,400	81,900	.....	6.32
Turkey - - -	24,100,000	50,000	40,000	.....	3.73
Australasia - - -	5,100,000	132,100	7,000	22,500	31.68
Egypt - - -	9,800,000	30,000	6,400	.....	3.71
Mexico - - -	13,000,000	8,600	106,000	4,000	9.12
Central America - -	3,400,000	1,000	11,400	18,100	8.97
South America - -	38,000,000	72,700	29,000	1,159,300	33.18
Straits Settlements - -	4,500,000	.....	242,000	.....	53.82
South African Republic	1,100,000	29,200	1,200	.....	27.63

¹ *Twenty-seventh Annual Report of the Director of the Mint* (1899), p. 42.

These figures show that Great Britain, the wealthiest country in the world, has a per capita circulation equal to about two thirds that of the United States, and less than half that of France. Some of the poorest countries exhibit the largest volume of currency per capita. What is the explanation of these apparent departures from the rule of investment in money in proportion to the effective demand for it? Some of the poorest countries showing large supplies of money are producers of the precious metals and are not able to dispose of their metallic products for other goods promptly enough to prevent a large accumulation. They may be considered in a sense as surplus stocks of their product rather than as money. The differences between the leading commercial countries, however, are due to other causes. The chief cause is the organization of the system of credit. It may be assumed that the five leading commercial countries—the United States, Great Britain, France, Germany, and Belgium—are upon a nearly equal footing, so far as their ability is concerned to obtain an adequate supply of metallic currency. If the proportions differ widely it is because one has availed herself more or less largely than another of substitutes for money.

The amount of economy in the use of the precious metals which has been attained by the modern banking system is almost beyond calculation. Such economies began in the infancy of commerce, when the Roman bankers discharged the debt of one man by offsetting it against the written record of another debt to him.¹ The full development of the credit system, however, can be attained only when it reaches the masses of the people and attracts into the custody of the banks all the little rivulets of saving which flow from their earnings. Such a use of the banks has not yet become the habit of the people of continental Europe. The banks have perfected among themselves the clearing of obligations against each other to a large extent, but they have not at their command the great capital derived from

¹ See "The Beginnings of Banking," by the present writer, *Sound Currency* (January 1900), p. 3.

deposits, which gives such power to the English, Scotch and American banks. The failure to use fully the deposit system has the double effect of diminishing the supply of loanable capital and requiring a larger investment of this limited supply in the tools of exchanges.¹

The influence of the organization of credit upon the quantity of money is not limited to the use of circulating substitutes for money, like government notes and bank notes. The quantity of real money needed in business is influenced equally, and in some cases even more, by the use of book credits, including the check and deposit system and the settlement of obligations between the banks by means of clearing houses. These factors in the distribution of money explain the fact that Great Britain has a relatively small circulation for the great volume of transactions carried on there. The mechanism of credit has been brought to greater perfection in Great Britain and in the north-eastern part of the United States than in any other parts of the world. The system of note issue of the Bank of England is more restrictive than is warranted by sound banking rules, but the restriction is less felt than would be the case in any other country, because of the development of other forms of credit. Economic development usually follows the lines of least resistance, and when it became as costly to use bank notes as to use gold, because notes were issued only upon deposits of gold, business men met the difficulty by extending the check and deposit system. Every instrument of credit which economizes the use of metallic money takes the place to a certain extent of such money and diminishes the demand for it. Professor Pantaleoni lays down the rule:²

The law of the value of instruments of credit comes to be : that every such instrument is worth as much as the money for which it is substituted,

¹Professor Leroy-Beaulieu declares in regard to the money supply of France, that "This great accumulation of money is without doubt a part of the wealth of France, but wealth badly employed. It would be better if she had two or three thousand millions of francs less of gold and silver and that much more in factories, machines, tools, and fertilizers."—*Traité d'Économie Politique*, iv. p. 191.

²*Pure Economics*, p. 240.

and whose value it has reduced below the level it would attain, if no instruments of credit were in circulation as a medium of exchange.

This rule leads to another—that the supply of metallic money in any society will depend upon the degree in which methods of credit are substituted for money. If the credit system is well developed, the quantity of money used will be proportionately less. If a given country with a highly developed credit system employs more metallic money than some other country without a credit system, the explanation of the seeming paradox is found in the larger demand in the former case for both money and its substitutes expressed through a larger volume of transactions. Thus several rules operate upon each other—the ability to invest capital in metallic money, the rapidity of the use of such money in town and country, the degree to which the use of credit has obviated the necessity for money, and the volume of transactions expressed in money—to create wide differences and seeming confusion in the relative equipment of each community with money; but underlying them all is a real harmony of distribution which responds to the effective demand for money under the complex of local conditions.

It is because of these local differences in the organization of credit and the demand for money that it is not possible to make an accurate comparison of the relative use of credit in different countries in relation to money. The exchanges through clearing houses are much larger in Great Britain and the United States than in France or Germany, but this is partly because a single great bank in each of the latter countries carries on business between its clients through its many branches which would be settled in Great Britain or America by transactions through independent banks. The checks in the former case are settled in the bank itself, while in the latter they pass through the clearing house.¹ There is a great volume of transactions of

¹If there were only two banks in a particular place there would be no economy in a clearing house. Two clerks would met at the banking house of one or the other, and compare the checks that each holds against the other.—WHITE, *Money and Banking*, p. 239.

this character through the American banks, on the other hand, which does not appear in any reports of their transactions or clearings. A check drawn upon the Bank of France by one patron of a bank in favor of another patron is recorded in its published reports of the volume of transactions; but a check thus drawn by the patron of an American bank and deposited by another patron in the same bank is not made the subject of public records. This difference in the character of the clearings and the records of them is of importance in comparing the small volume of clearings at Paris or any other continental clearing house with the clearings at London or among the American banks.¹

The clearing system is a development of the old principle of Roman commercial law known as *compensatio*—the setting off of a debt owed to another by a claim against him.² The system attained a high degree of development at Lyons in the middle ages, when settlements were made at the great fairs four times a year, at the beginning of each quarter. Merchants made all their bills payable at Lyons on one of these dates and were required to be present to exchange bills and settle balances or be adjudged bankrupts. The quarterly settlements were made in a handsome building (*la loge des changes*) erected by Soufflot and were continued until the Revolution.³ In spite of these early origins of the clearing system, the creation of clearing houses has come about slowly in the modern banking world. The Edinburg Clearing House was founded in 1760 and that of London about 1775, but it was not until 1846 that a clearing house was established at Dublin and 1872 when the system was extended to the smaller English cities.⁴ London bankers down to about 1775 used to send out clerks daily to collect from the

¹ The Bank of France, however, issues to depositors books of transfer bonds (*bons de virement*), which are not payable in cash, but pass sums on the books of the bank from one account to another.—*Dictionnaire du commerce*, i. p. 891.

² *Vide* MACLEOD, *Theory of Credit*, i. p. 330.

³ The last settlement was in April 1793. *Vide* the report of the Chamber of Commerce of Lyons in 1802, given by COURTOIS, *Histoire des banques en France*, p. 334.

⁴ G. FRANCOIS, in *Journal des Économistes* (March 1897), xxix. p. 345.

other banks the notes and other obligations of such banks which had fallen into their hands. This required each bank to pay in full in cash all of its obligations which were presented by all the others and required each to keep a large amount of money. The cost and wastefulness of this method led the bankers to take the matter in hand and secure permanent quarters for the meeting of their clerks and settlement of their balances. The working of the system fully justified the benefits ascribed to it by Mr. Horace White, when he declares that "A clearing house enables any number of banks to settle their balances in about the same time that two banks could do so, the clearing house being, for this purpose, the only creditor and the only debtor of each bank."¹

The settlement of balances at the clearing house was at first made in cash, but since 1854 has been made in drafts upon a special deposit fund by each bank at the Bank of England for the benefit of the clearing house. As these deposits are not specifically set aside in cash, the entire clearings are practically made by credit and without the intervention of currency. The balances settled ran as high as £5,534,000 in a single day in the year ending March 31, 1880, which would have absorbed one fifth of the circulation of the Bank of England if bank notes had then been employed.² The admission of the joint stock banks to the clearing house, which did not occur until 1854, is estimated to have released them from the necessity of keeping £500,000 in currency on hand for meeting their checks.³ In Scotland the system of settlements by drafts upon London was early adopted and it was made a rule that in case such a transfer was not duly paid in London "without prompt and satisfactory explanation of the cause, the bank issuing such intimation of transfer shall be immediately excluded from the exchange room and clearing house."⁴

¹ *Money and Banking*, p. 239.

² *London Bankers' Magazine* (February 1896), lxi. p. 253.

³ MACLEOD, *Theory and Practice of Banking*, ii. p. 184.

⁴ GILBART, *Principles and Practice of Banking*, vol. ii. p. 245.

The system of settlement of clearing balances by other means than cash results not only in great economy in the use of cash, but in the saving of wear and expense in transferring coin daily from one bank to another. The clearing houses of the United States are not governed by a uniform rule in respect to clearing settlements. Among the most convenient of the methods employed to avoid transfers of cash is the use of checks drawn by the clearing house manager upon banks found to be debtors to the clearing house in the daily settlements. These checks may be presented for payment by the bank in whose favor they are drawn or may be cleared at the next settlement. A somewhat similar method, in the economy of money which results from it, is the loaning to the debtor banks of the balances found to be due by them to the creditor banks. Banks in the smaller cities settle largely by drafts on the financial centers. The clearing houses of New England settle, as a rule, with drafts on Boston or New York, while nearly all those east of the Mississippi River settle more or less by drafts on New York.¹

The settlements in New York are made nominally in money, but actual transfers of coin and legal tender currency have been reduced to a minimum within the last few years. United States currency certificates, issued by an assistant treasurer of the United States in denominations of not less than \$5000, upon the deposit with him of United States notes, were largely used at one time, but the authority for their issue was repealed in 1900.² After the completion of the new clearing house on Cedar street, early in 1896, gold certificates issued by the clearing house upon deposits of gold coin made in its vaults came into general use. These certificates are used only between the banks, but may be presented at any time for redemption in the gold which they represent.³ The New York settlements, therefore, may be said

¹ JAMES G. CANNON, *Clearing Houses*, p. 46. About 17 per cent of the clearing houses in the United States settle in cash alone, and 25 per cent. by manager's checks. A combination of methods is pursued in many cases.

² Act of March 14, 1900, § 6.

³ *Vide* CANNON, p. 190. There is a fine of \$100 for the transfer of certificates to non-members of the clearing house. Certificates of this character may be counted as part of the bank's legal reserves by § 5192 of the Revised Statutes.

to be made in lawful money, consisting largely in coin taken from the reserves of the several banks, but the actual transfer of the coin is obviated by the exchange of paper certificates which entitle the holder to the coin when he desires it.¹

The clearing system is less perfectly developed on the European continent. The Paris Clearing House is composed of eleven banking houses, and was not organized on its present basis until 1872. The Vienna Clearing House, with a dozen leading banking houses grouped around the bank of Austria-Hungary, was organized in the same year, but several of the private banks adjusted their compensations between themselves as early as 1864. A clearing house was formed at Berlin in 1883, with the Imperial Bank as its center, and another by nine banks at Frankfort in the same year. Clearing houses are now in operation at Hamburg, Stuttgart, Cologne, Bremen, Leipsig, Breslau, and Dresden.² Melbourne, Australia, on the other hand, has had a clearing house since 1868.

What has thus far been said in regard to the distribution of money and its substitutes may be said to relate to its permanent distribution among trading countries. It remains to consider the more transient movements which carry money back and forth between countries reasonably well equipped with currency, and the reasons and methods of such movements. A civilized country which has become accustomed to the general use of money is not likely to part with the amount required for ordinary transactions, even under severe pressure. The benefits of using money as a medium of exchange are so great and obvious after its use is once introduced, especially in the towns and cities, that a real penury of money for retail transactions is seldom permitted, even for the purpose of obtaining other important benefits. Such changes as occur, therefore, in the supply of currency in a civilized country are those which affect the speculative and

¹ The balances for the year ending September 30, 1900, were \$2,730,441,810, of which \$2,267,775,000 was paid in clearing house certificates and \$453,218,000 in treasury gold certificates. The largest balances on any one day were \$19,780,665, on January 3, 1900.

² ARNAUNÉ, pp. 382-384.

loan funds, and their influence is first felt upon the bank reserves and the stock exchanges. These changes only rarely go far enough to reach down into the pockets of the masses and draw out of a country the necessary equipment of the means of exchange. If a serious deficiency of money develops for any reason within a country as compared with its neighbors, the influence is felt upon the prices of goods. Prices will fall and will attract money for the purchase of goods from countries where money is more plentiful and prices of goods are higher. The results are thus set forth by Professor Pantaleoni : ¹

There will therefore be an influx of money into the market where prices are low from the one where they are high, which will continue until the increased amount of money in the first, by causing a rise of prices, and the diminished amount of money in the second, by causing a fall of prices, have brought about a uniform level of prices in both markets. This phenomenon is expressed in another Ricardian theorem, viz., *that the amount of the currency is regulated in each country by its value.*

This operation of the quantity of money upon prices is determined by the law of marginal utility. Countries having a greater supply of money than is needed for their transactions can afford to part with it at low rates in exchange for other commodities. This is especially the case with countries producing the precious metals used as money, from which a constant flow of the metals takes place in exchange for the products of other countries, without depleting the domestic stock of money. It is in this manner that the gold of the mines soon passes from the country where the mines are located, is diffused gradually over other countries, and enters into the monetary systems of the world.

This explanation of the causes underlying the movement of money, while fundamental in its character, relates in a large degree to the permanent distribution of money and requires to be supplemented by a statement of other influences which affect its temporary distribution. The temporary transfer of instruments of credit is usually due to changes in the rate of discount. The modern mechanism of credit, of which the discount

¹ *Pure Economics*, p. 234.

rate is a part, affords several steps for restoring equilibrium between the demand and supply of money before prices of commodities are seriously affected. A surplus of currency affects the discount rate, which is the charge for the rental of money, and the rate of discount determines the movements of money.

The rule that the distribution of money is governed by the rate of discount, is to be interpreted strictly. It is limited to money as a specific commodity, the tool of exchange, and to discount as the rate for short term loans. The definition is not intended to cover all loans of capital nor loans at interest for long terms. The rate of interest is the charge for the use of capital; the rate of discount includes more directly the charge for the use of money. Money is a part of capital, and the two demands—for money and capital—are often confused with each other. The discount rate and the interest rate are not far apart when there is only a normal demand for money as such, but the discount rate rises far above the interest rate when an abnormal demand for money makes it more sought after than other forms of capital. It is the ability and readiness to pay money on demand which is maintained by the banks through the discount rate. Ordinary demands for banking accommodation are demands for capital or for transferable credits which can be used in lieu of money for immediate needs. The mechanism of modern credit is such that considerable transfers of credit, which is equivalent to money, can now be made without the actual transfer of gold, but only credit of the best character and in negotiable form serves this purpose, because it is known to be convertible into gold in a direct and inexpensive manner. The time when the demand for money and banking credits is such as to cause a great rise in the discount rate, is when the ability to fulfill money contracts has been called in doubt by the failure of other forms of credit. It is then that the discount rate departs most widely from the interest rate, because it is no longer confounded with the demand for all forms of capital, but has become an intense demand for the one form of capital constituting metallic money or at least for trustworthy promises to pay such

money.¹ How wide these differences have been between rates of interest and discount is illustrated by the following table, which shows for a period of seven years the average discount rate at the Bank of England and the average interest rate afforded by English consols :²

Year	1879	1880	1881	1882	1883	1884	1885
Discount rate - - -	2.63	2.75	3.50	4.12	3.54	2.53	2.91
Interest rate - - -	3.07	3.03	3.01	2.96	2.97	3.02	3.02

The reason for these differences between the discount rate and the rate of interest is found in the different subjects with which they deal. This is defined by M. Nitti, as follows :

The duration of operations of commercial discount makes bank loans, contrary to current opinion, loans of money and not of capital. This explains why monetary phenomena have a marked influence upon discount, while they have but a mild action upon interest. The rate of interest varies only over long periods, while the rate of discount varies rapidly. The reason for this difference between two phenomena which are so similar in appearance is in the difference in their essence. The first is a loan of capital; the second is a loan of money. Discount is then only a phenomenon of the monetary circulation and must suffer the reaction of numerous and frequent variations in the value of money.

It should be added, in qualification of this view, that money and banking credits are the concrete expression to a large degree of the fund of floating capital seeking investment for short terms. The scarcity of such capital is more closely linked with the scarcity of money than is the scarcity of capital invested in permanent forms, or seeking such investments. The loan fund of floating capital is not exactly identical with the money supply, but the two are more nearly co-extensive with each other than either is with the entire fund of capital. They therefore respond more nearly in the same degree to common

¹ It is clear that, notwithstanding a necessary parallelism between the variations of discount and of interest under a system of pure economics, capital and money are essentially different, and the market for loans of capital is not the market for loans of money.—PANTALEONI, p. 263.

² NITTI, in *Revue d'Économie Politique* (May 1898), XII, p. 371.

influences.¹ Money is subject to the laws which govern other merchandise. There is often a special demand for money as such, independently of the demand for capital. Under normal conditions of the market the value of money, as influenced by banking operations, is determined by changes in the discount rate rather than by changes in the prices of commodities. A rise in the discount rate, which adds to the value of money for the time being, may have a reaction upon prices, but the fact which is indicated primarily by the rise in the rate is that the circulating medium is not adequate to the demand for its use. An adequate supply of the circulating medium may be attracted through the discount rate without any marked influence upon the prices of commodities.

The value of money as fixed by the discount rate in any market is the index of its marginal utility there. Higher discount rates in another market indicate that money as such has a higher utility there, and they attract it from the market where its utility is small. Low discount rates indicate that money has a low degree of utility in a given market in relation to the supply. It is the surplus on the margin of supply which fixes the rate for the entire stock. When the surplus of a community consists not only of money, but of capital, the transfer of the surplus to another community takes place in goods as well as gold. But there may be a scarcity of money in relation to the demand when there is a surplus of capital, and the rate for permanent loans has not changed. A flurry upon the stock exchange, which creates a sudden demand for money at a high rental value, does not involve any change in the permanent rates for the loan of capital, except so far as the high rate for money may afford the temptation to the capitalist to

¹ Professor Joseph French Johnson makes a further distinction between the rate of discount on commercial loans and the call-loan rate of interest, which is of some importance. He declares that "the speculator stands among borrowers as a residual claimant upon capital," getting "temporary control of capital while it is en route from the saver to the entrepreneurs." Both the supply and the demand for this residuum fluctuate much more widely than the demand for commercial loans, with the result of wider differences in rates.—*Political Science Quarterly* (September 1900), xv. p. 500.

convert his savings into money instead of keeping them in other forms of capital.¹

If the discount rate is so efficient and sensitive a factor in the distribution of money, it may be asked why discount rates do not exhibit greater uniformity in different countries. The average rate of discount in 1895 at London, for illustration, was 2 per cent., while the rate at Brussels was 2.60 per cent., at Berlin 3.15 per cent., and at Rome and St. Petersburg 5 per cent.² Why did not a rate of 5 per cent. at Rome and St. Petersburg draw gold in an overflowing stream from London and Brussels and compel the banks there to raise their rates? The answer is found in the various component elements of which the rate of discount is made up. It includes not only the rental charge for money, but the rental charge for the use of capital. These charges are affected by some elements in common, but each is subject to special influences which do not act upon the other. The rate for the rental of capital differs permanently between countries. This difference is due in some degree to the friction which interferes with the free play of economic laws, but is due also to a number of special causes. Neither capital nor money possesses perfect transferability, but money comes much nearer to doing so than other tangible forms of capital. It is a reasonable proposition, therefore, that, in order to draw money from one country to another by changes in the discount rate, the advance in the rate must be more than the difference in the rental of capital in the two countries. If the discount rates set forth above for 1895 represented the normal rate for the rental of both capital and money, in the countries named—which was pretty nearly the fact at that time—it is obvious that a demand for money in London which resulted in an advance of the discount rate to 3 per cent. might attract money from Brussels, but would not attract it from Berlin or St. Petersburg. It

¹ "If the rate of discount rises, the holders of shares, bonds, stock, and other interest-bearing securities will find it profitable to employ their money in discounting bills rather than in holding the former. Hence sales will take place, with the result of sending down the prices of securities."—PANTALEONI, p. 236.

² *Bulletin de Statistique* (January 1897), xli. p. 90.

would be necessary, in order to attract money from Berlin, to put the rate in London at, say, 3.50 per cent., and, in order to attract it from St. Petersburg, to put it at 5.50 per cent. If it was desired in those markets to protect their money supply, a slight advance above these rates would be made there. There is sufficient sympathy between the European markets to cause an advance in the discount rate in one to be followed usually by advances in the others, but the advance is added to the normal rate for the rental of capital, which differs from country to country.

The element of risk is an important factor in determining the rate for loans, although it is not always distinctly separated, even in the minds of borrowers and lenders, from the charge for the rental of capital under the conditions of perfect security. There is a complexity of elements which increases or diminishes risk, which includes not merely the relative certainty of profit in investments and the standard of commercial integrity, but also special commercial habits and laws governing the collection of debts. One of these elements is the nature of the monetary standard and the laws which govern it. A short-term loan in London has for many years represented the minimum of risk because of the certainty that it would be paid in a single metal, the steadiness of monetary conditions there, the rules of prompt payment which govern English commercial transactions, and the laws which enforce these rules. The risk of loss is in general less in an old country, where conditions are comparatively fixed and the chances of profit can be reasonably calculated, than in a new country where enterprises are constantly undertaken which have not the experience of similar enterprises in the past as a guide for determining profits. In such countries, therefore, a higher discount rate is charged for reasons which are distinctly economic. The standard of commercial integrity is usually more definite and its rules are better known in a country long accustomed to trade than in one where trade is just developing. In the old country greater "conservatism" prevails; in the new country, greater daring and bolder taking of risks, which add to the danger of losing borrowed capital.

The influence of legislation upon the movements of capital is great, in spite of the fact that legislation often involves an interference with the free play of economic laws. When several western and southern states of the United States passed laws during periods of crop failure and depression, tending to make it difficult to collect debts and foreclose mortgages, insurance companies, bankers, and other classes of lenders, naturally refused to extend loans where such laws prevailed, and withdrew the capital already invested as rapidly as possible, with the result of greatly raising the rate charged for money by the borrowers who continued willing to take the risks. Dangerous and fraudulent investments in addition to the direct risk involved, tend indirectly to raise the rate for the rental of capital by withdrawing considerable amounts from legitimate use and diminishing the available supply.[†] These elements confuse the real difference between the economic value of capital in an old country and an undeveloped one and make the actual discount rates farther apart than the purely economic difference would make them.

Another reason for wide differences in the charge for loans is found in the relations of supply and demand in different markets, as affected by the degree of friction involved in transferring capital. A comparatively small equipment of gold would over supply the needs of the St. Petersburg market, if introduced suddenly from London or Paris, but would not at once force down the discount rate in a degree corresponding to the increased supply, because a high rate has been established by custom and the circle of solvent borrowers could not be indefinitely extended. The effect of security and large supplies of gold in reducing the average discount rate proceeds gradually in countries whose economic condition is improving, until low rates become customary and the market becomes more sensitive to

[†] The point of equilibrium of the supply and demand of capital is forced upward by the action of the speculators who are not really in a position to offer interest, but who are enabled by the blindness of certain sections of the investing public to compete in the market for industrial loans.—HADLEY, p. 283.

changes in the rate. Friction and the cost of transferring money explain the differences which have prevailed on many occasions between Paris and London, when the loan of capital was almost equally safe in either place. Movements of capital and money have taken place from Paris to London, when the rate has been materially higher at the latter point, but have not been followed by a rise in the discount rate at Paris, because of the small effect produced upon the economic system of the country. The London market is the most sensitive of the markets of the world, partly because it is the center of international transactions and partly because the English people, under the present organization of their banking system, have preferred to submit to frequent changes in the discount rate rather than to invest a large part of their surplus capital in an idle reserve of gold.

Does it follow from the special character of the demand for money expressed through the discount rate, that the rates for the use of money and capital are governed by the stock of metallic money? Under business conditions which are normal, the answer to this question in all its aspects must be in the negative. The rates for capital are determined almost entirely by relation of the supply to the demand, without reference to the quantity of the tools of exchange by which transactions are carried on. A permanent reduction in the supply of money, to which the community adjusted itself through changes in prices and the improvement of methods of credit, might be accompanied by abundant production of commodities, large stocks of surplus capital seeking investment, and low interest rates. Discount and interest rates under such conditions would tend toward equality. They would both be governed by the supply of capital and not by the supply of money, so long as the latter was not notably deficient. If, however, the supply was declining and its decline was felt in an injurious manner, the transition would probably be accompanied by high discount rates and frequent fluctuations in such rates while the process was going on.¹

¹ The attempt has sometimes been made to prove that a scarcity of gold might cause low instead of high discount rates, because, "as one effect of a scarcity of gold

But, speaking generally, the special influence of the quantity of metallic money upon the rate for capital is felt only under business conditions which are abnormal. The entire stock of money in the world tends towards a permanent relationship to the amount of work to be done by money, and this assumed static condition would not reveal any influence of the total supply upon the charges for the use of a part of it. It is the constant disturbance of this static condition by changes in the demand for money arising from the movements of goods, and by changes in the state of credit, which leads to an almost automatic effort to restore equilibrium by changes in the discount rate from place to place. It may be said, therefore, that the total stock of money in the world has no influence upon the charge for the use of money, but that the stock in any given place does have an influence upon the charge for its use, whose intensity is determined by the relative supply and the relative degree of efficiency of substitutes for money.¹

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is, through falling prices, to check enterprise and speculation, the demand for capital would naturally be diminished, and the rate of discount would fall?" But this theory will hardly bear examination. *Vide Report of the Royal Gold and Silver Commission*, paragraphs 44, 45.

¹The absolute supply of the precious metals is a matter of indifference; that which has an influence is their increase and their circulation. Contemporary experience comes to the support of this opinion. The variations of the rate of interest in the course of the nineteenth century have been independent of the production of the precious metals.—PROFESSOR R. G. LÉVY, in *Journal des Économistes*, March 1899, xxxvii. p. 338.